

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Currently Amended) A process for the manufacture of a solid polymer foam, which is formed of a crosslinked, exclusively hydrocarbon copolymer, the hydrocarbon copolymer consisting of styrene and divinylbenzene monomers, and which exhibits a density at least equal to 6 mg/cm^3 and at most equal to 20 mg/cm^3 , and cells with a mean cell diameter of between 2 and 10 micrometers, said process comprising the following stages:
 - a) providing an organic phase comprising styrene monomers, divinylbenzene monomers and sorbitan monooleate in ethylbenzene, wherein the styrene and divinylbenzene monomers represent from 40 to 60% by weight of the weight of the organic phase and the sorbitan monooleate represents from 20 to 30% by weight of the weight of the organic phase;
 - b) providing an aqueous phase comprising an electrolyte and sodium persulfate in water;
 - c) producing a high internal phase emulsion by mixing together the organic phase and the aqueous phase, the volume of the aqueous phase representing at least 96% of the total volume of the two phases;

d) copolymerizing the styrene and divinylbenzene monomers until a solid foam is obtained;

e) washing the foam obtained in stage d) and subjecting the so washed foam to drying with supercritical CO₂.

7. (Canceled)

8. (Previously Presented) The process as claimed in claim 6, in which the ratio by weight of the styrene monomers to the divinylbenzene monomers is between 4 and 1.

9. (Canceled)

10. (Canceled)

11. (Previously Presented) The process as claimed in claim 6, in which the electrolyte is aluminum sulfate.

12. (Previously Presented) The process as claimed in claim 6, in which the electrolyte represents from 0.1 to 2% by weight of the weight of the aqueous phase.

13. (Previously Presented) The process as claimed in claim 6, in which the sodium persulfate represents from 0.1 to 2% by weight of the weight of the aqueous phase.

14. (Previously Presented) The process as claimed in claim 6, in which the water present in the aqueous phase is ultrapure water.

15. (Currently Amended) The process as claimed in claim 14, in which the ultrapure water present in the aqueous phase has a resistivity of 18.2 ~~megahms~~ megaohms.

16. (Previously Presented) The process as claimed in claim 6, in which the copolymerization of the monomers is carried out at a temperature ranging from 30 to 70°C.

17. (Previously Presented) The process as claimed in claim 6, in which the washing of the foam comprises one or more washing operations with water, followed by several washing operations with water/alcohol mixtures with an increasing content of alcohol, themselves followed by one or more washing operations with the alcohol.

18. (Previously Presented) The process as claimed in claim 8, in which the ratio by weight of the styrene monomers to the divinylbenzene monomers is equal to 1.